

i-STEPS Development for State and Local Agencies

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Presented by Calvin Thames

MACTEC Federal Programs

(f/k/a Pacific Environmental Services)

Overview

- Introduction to *i*-STEPS
- Development for State and Local Agencies
- Development for Other Users
- Future Development
- Conclusion

Introduction to *i*-STEPS

- Environmental Data Management System
- First released in 1992
- Designed around the AIRS data structure
- Used by over 25 regulatory agencies
 - States
 - Locals
 - Tribal
- 30 DoD installations
- Over 2500 industrial facilities through Satellite *i*-STEPS

Introduction to *i*-STEPS

History of *i*-STEPS

i-STEPS C/S ♦

♦ *i*-STEPS *infinity*

♦ *i*-STEPS for Windows

♦ *i*-STEPS

♦ STEPS

♦ SAMS

1988

2003

Introduction to *i*-STEPS

- Primarily used to collect, manage, and report air emissions data
 - Collects data remotely from industry with Satellite *i*-STEPS
 - Manages data at agency with robust ad hoc reporting and end user modification capabilities
 - Reports data to the NEI

Introduction to *i*-STEPS

i-STEPS - DATA

File Edit Reports Tool Box Accessories Help

Org-Chem Company Facility Emissions

Pollutant	Tons/Year	Lbs/Hour	No Ctrl Tons/Year	No Ctrl Lbs
NITROGEN DIOXIDE	6.071408	1.445573	8.4	1.999999
SULFUR DIOXIDE	0.02602	0.006196	0.035998	0.00857
VOLATILE ORGANIC COMP	169.7928	38.76668	169.8394	38.77777

Stack 0001, Stack 01 Emissions

Pollutant	Tons/Year	Lbs/Hour	No Ctrl Tons/Year	No Ctrl Lbs
NITROGEN DIOXIDE	13.08563	3.115626	22.4	5.33333
SULFUR DIOXIDE	0.05608	0.013356	0.095992	0.022852
VOLATILE ORGANIC COMP	0.261712	0.06231	0.448	0.10667

Abatement of Process Stream

Pollutant	Level	Capture %	Efficiency %	Control Equipment
NITROGEN DIOXIDE	1"	0.000	0.000	NO EQUIPMENT
NITROGEN DIOXIDE	2"	0.000	0.000	NO EQUIPMENT
NITROGEN DIOXIDE	Total	0.000	0.000	

Process 01, Direct Emissions Emissions

Pollutant	Tons/Year	Lbs/Hour	No Ctrl Tons/Year	No Ctrl Lbs
NITROGEN DIOXIDE	5.6	1.333333	5.6	1.333333
SULFUR DIOXIDE	0.024	0.005714	0.024	0.005714
VOLATILE ORGANIC COMP	0.112	0.026667	0.112	0.026667

Stream Flow from Process Unit 01, Direct Emissions

Ins Caps 1:29:34 pm

Facility Emissions

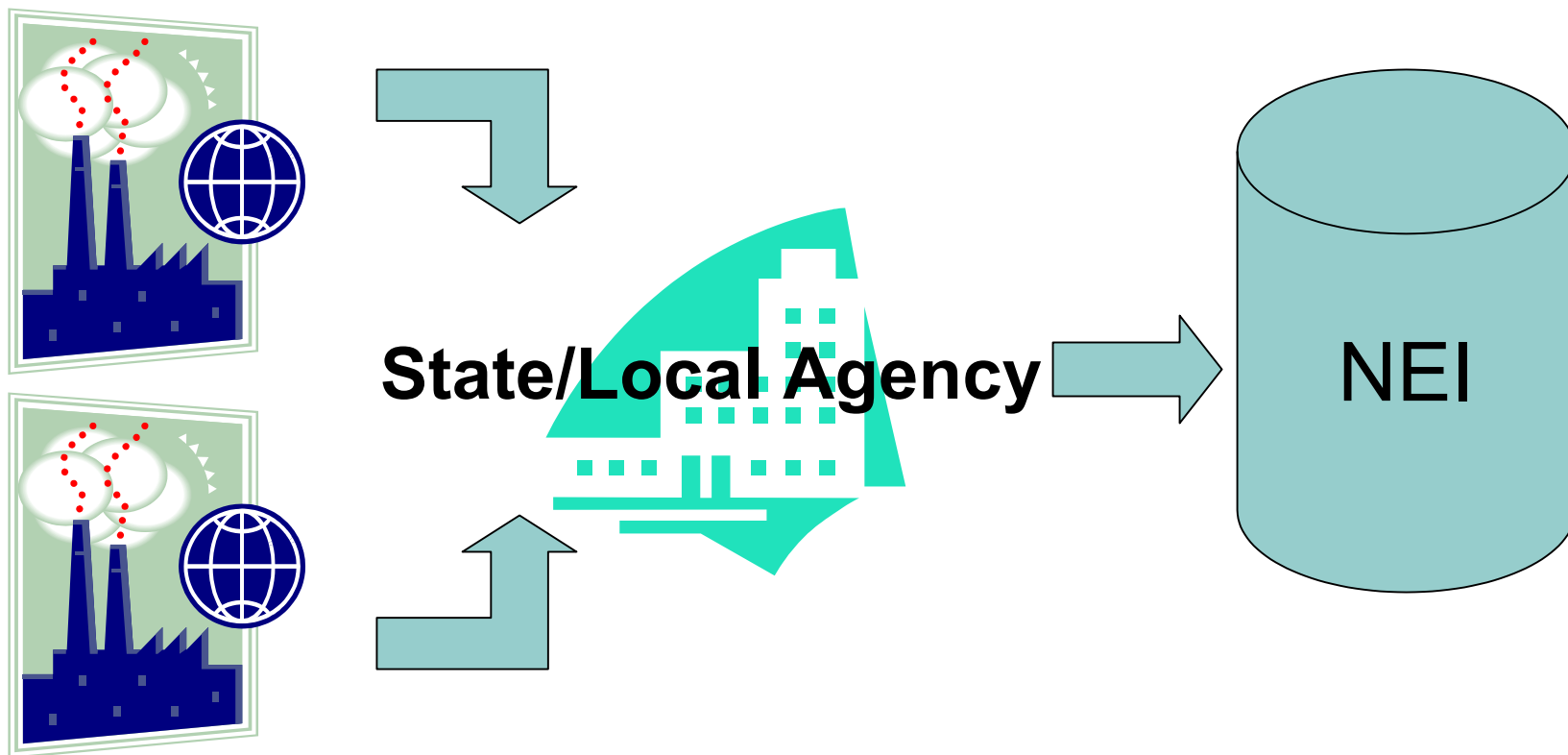
Stack Emissions

Abatement Equipment

Process Unit Emissions

Ok

Introduction to *i*-STEPS



Satellite *i*-STEPS

i-STEPS

Development for State and Local Agencies

Kentucky Department for Environmental Protection

Requirement

Provide a client/server version consist with State infrastructure standards.

Development for State and Local Agencies

Kentucky Department for Environmental Protection

Solution

i-STEPS Oracle Client/Server Version

- Completely rewrote the file server software to allow the database calls to access data from an Oracle database
- Maintained the user interface to minimize the impact on existing file server users

Development for State and Local Agencies

Delaware Department of Natural Resources

Requirement

Allow web browser access for Satellite *i*-STEPS users. Eliminate need to distribute and collect data and software with regulated industry.

Development for State and Local Agencies

Delaware Department of Natural Resources

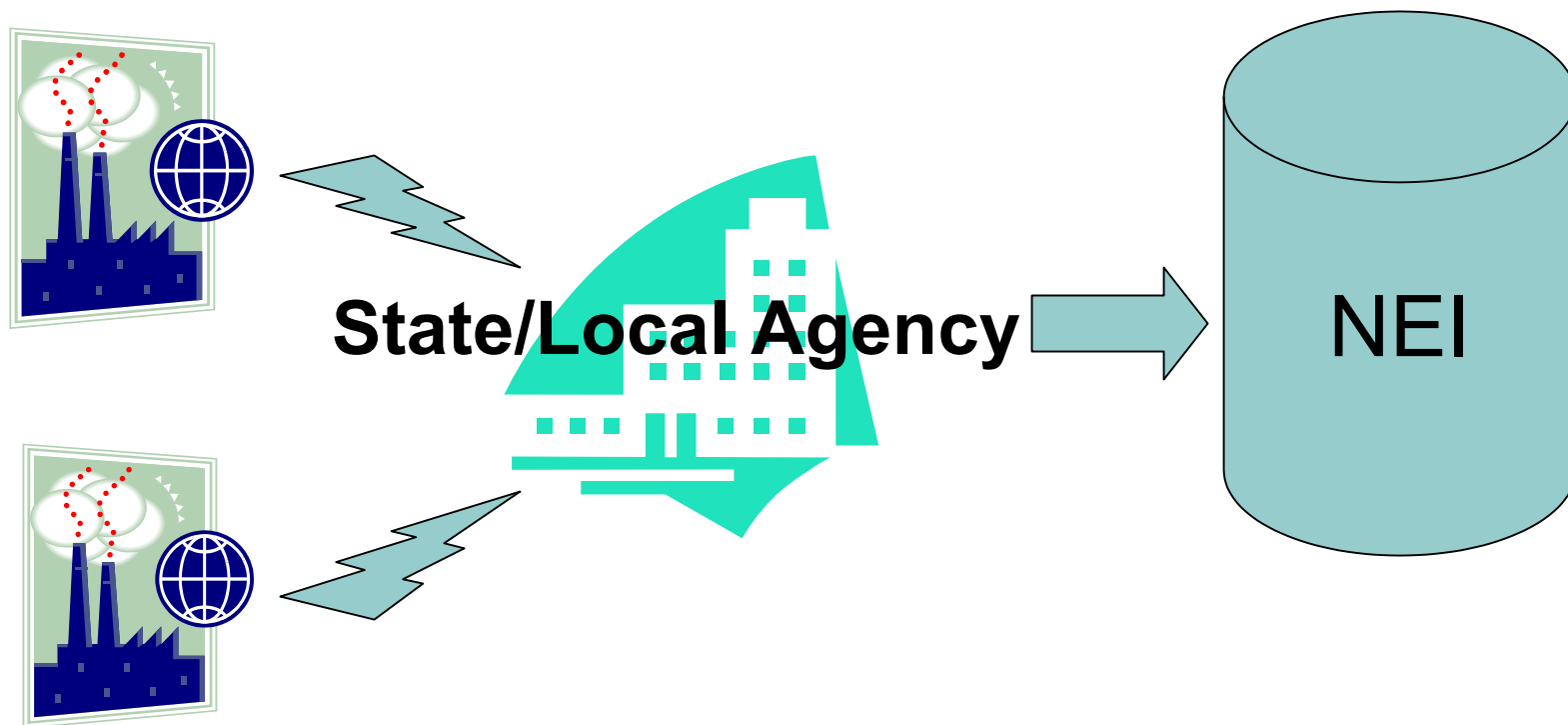
Solution

i-STEPS Terminal Server Version

- Database resides at the agency
- Remote users access data through web browser
- Industry updates their data online
- State QAs data and promotes to master database

Development for State and Local Agencies

i-STEPS Terminal Server



Satellite *i*-STEPS

i-STEPS

Development for State and Local Agencies

Delaware Department of Natural Resources

Requirement

Integrate *i*-STEPS into State infrastructure standards.

Development for State and Local Agencies

Delaware Department of Natural Resources

Solution

i-STEPS SQL Server Client/Server Version

- Converted database calls to access Microsoft SQL Server database
- Resulted in *i*-STEPS versions that can access Oracle, SQL Server, and desktop databases
- Added functionality to facilitate sharing of *i*-STEPS data with other State systems

Development for State and Local Agencies

Indiana Department of Environmental Management

Requirement

Assist with the implementation of *i*-STEPS and
Satellite *i*-STEPS.

Development for State and Local Agencies

Indiana Department of Environmental Management

Solution

- Used *i*-STEPS import routines to populate *i*-STEPS data base with compliance and emissions data from AIRS
- Established web site to distribute Satellite *i*-STEPS to almost 1300 facilities

Development for State and Local Agencies

Kansas Bureau of Air and Radiation

Requirement

Enhance permit, fee, and compliance functionality in the areas of planning, tracking, and reporting.

Development for State and Local Agencies

Kansas Bureau of Air and Radiation

Solution

i-STEPS Fee Log, Permit Processing, and Compliance Information Modules

- Fee Log
- Operating Permits Log
- Construction Permits Log
- Permit and Inspection Forms
- Compliance Tracking

Development for State and Local Agencies

South Carolina Department of Health and
Environmental Control

Requirement

Modify Satellite *i*-STEPS to match the agency's extensive use of state defined emission factors.

Development for State and Local Agencies

South Carolina Department of Health and
Environmental Control

Solution

- Added functionality to:
 - Identify pollutants with emission factors that are not in the facility's inventory
 - Update existing inventory records with the most current emission factors

Development for State and Local Agencies

Metropolitan Government of Nashville and
Davidson County

Requirement

Enhance *i*-STEPS to provide functionality for handling complaints and fee invoicing.

Development for State and Local Agencies

Metropolitan Government of Nashville and
Davidson County

Solution

i-STEPS Complaint Tracking and Invoice
Generation Modules

- Complaint information tracked are property owner, complainant information, complaint type, and inspector notes
- Six invoice types may be selected and created as mail-merge documents

Development for State and Local Agencies

Philadelphia Air Management Services

Requirement

Easily access paper documents vital to their everyday business processes including:

- Construction permits
- Operating permits
- Stack test reports
- Inspector reports
- Correspondence

Development for State and Local Agencies

Philadelphia Air Management Services

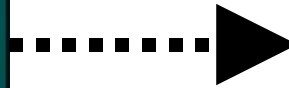
Solution

Permit Document Archive Retrieval Tool (*p*DART)

- Combined two products – *i*-STEPS and DART
- Converted paper documents to searchable images
- Created search indices for each document
- Integrated *p*DART into *i*-STEPS

Permit Document Archive Retrieval Tool (pDART)

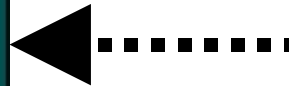
Permits



Convert to
Image



Implement
System



Metadata
& Process
Image



Permit Document Archive Retrieval Tool (pDART)

I-STEPS INFINITY - C:\DATABASE\DATA\K56\

File Edit Reports [11] View Accessories Help Map

Search (Global U)

Search DART Documents

Year - 2002 Data Sensitive Facility

Stacks - 4

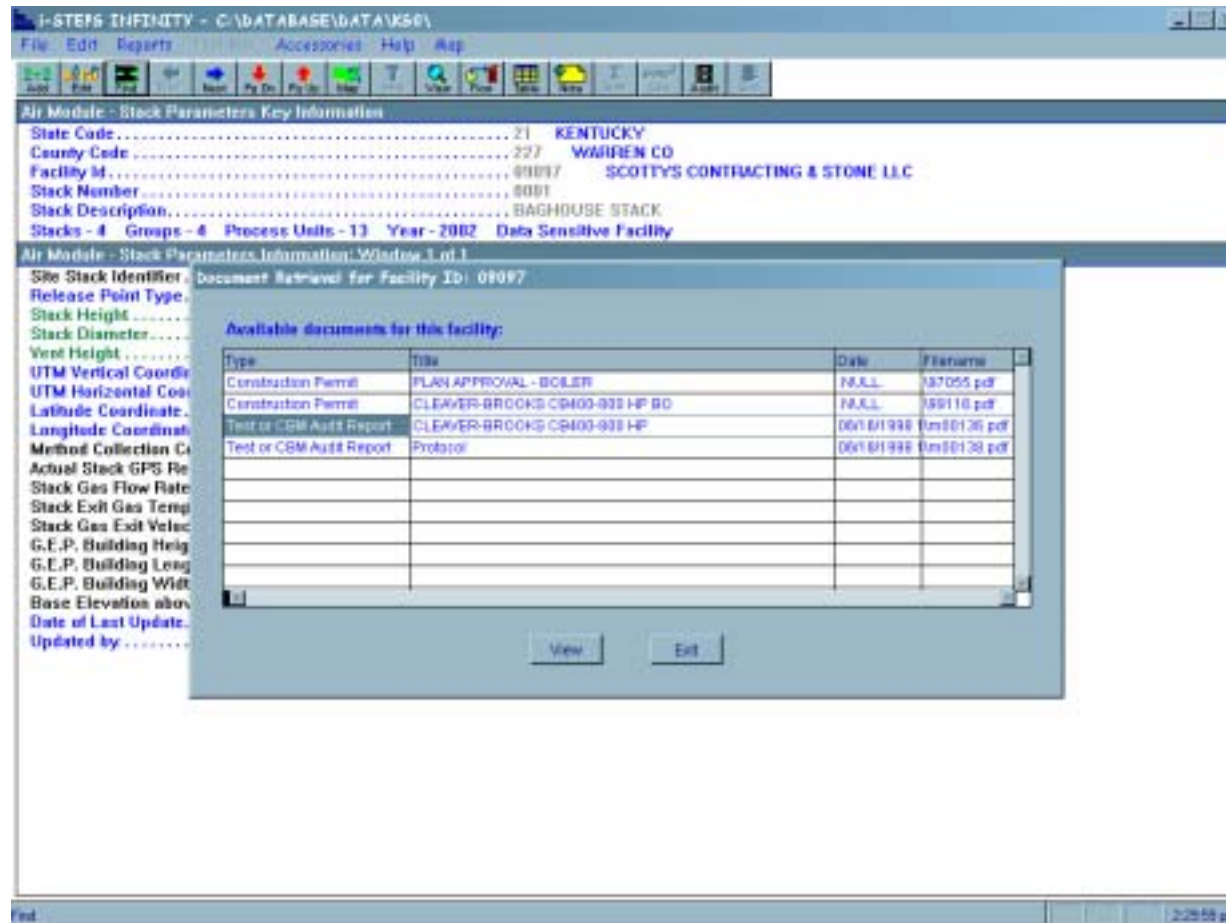
Stack Parameters Information; Window 1 of 1

Site Stack Identifier	DRYER STAR
Release Point Type	02
Stack Height	23 Ft
Stack Diameter	8.00 Ft
Vent Height	0 Ft
UTM Vertical Coordinate	4180.841 KM
UTM Horizontal Coordinate	558.961 KM
Latitude Coordinate	378313 DDDMMSS
Longitude Coordinate	9862013 DDDMMSS
Method Collection Code	
Actual Stack GPS Reading?	<input checked="" type="checkbox"/> No
Stack Gas Flow Rate	72000 acfm
Stack Exit Gas Temperature	250 degrees F
Stack Gas Exit Velocity	23.9 ft/sec
G.E.P. Building Height	0 Ft
G.E.P. Building Length	0 Ft
G.E.P. Building Width	0 Ft
Base Elevation above MSL	0 meters
Date of Last Update	11/07/2002 MM/DD/YYYY
Updated by	FFS

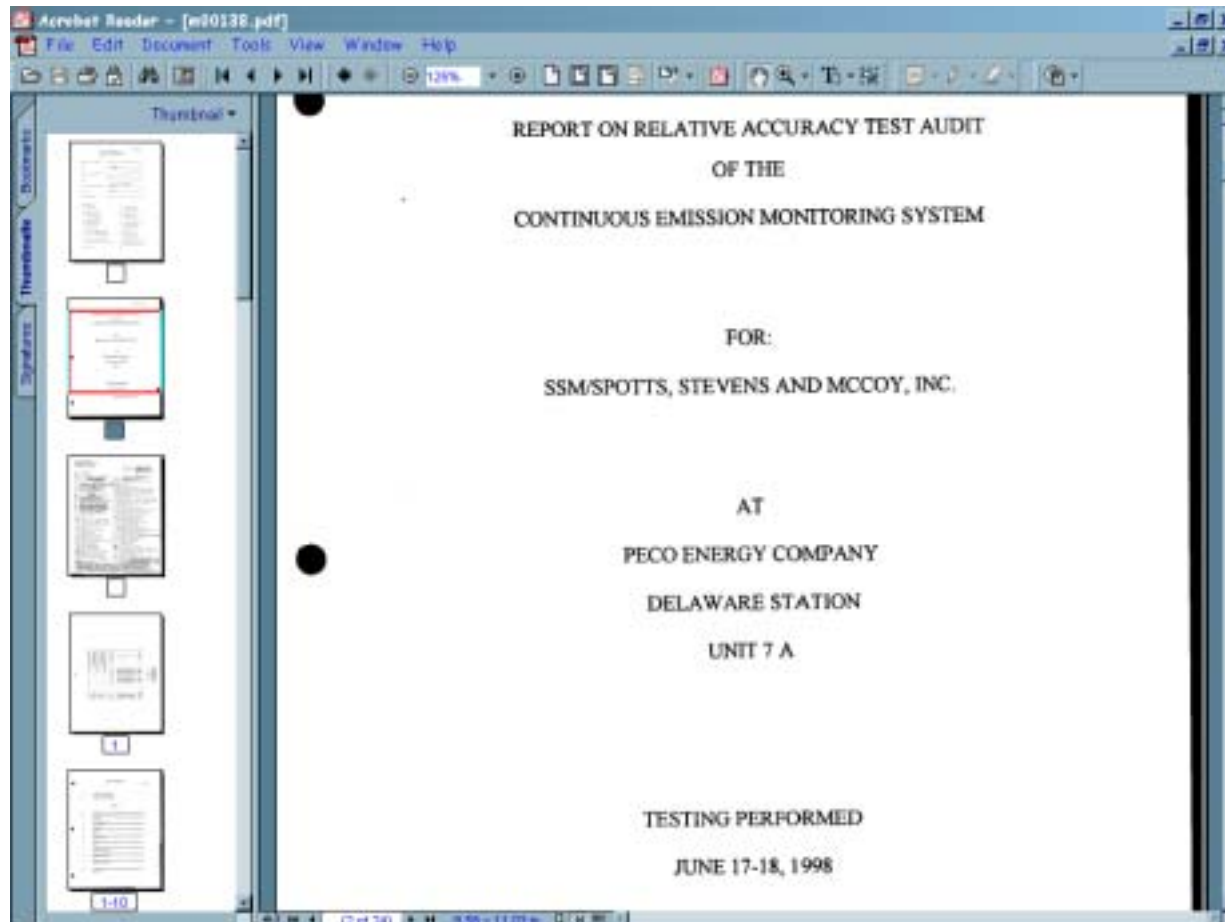
Locate and view facility documents

2:28:23 pm

Permit Document Archive Retrieval Tool (pDART)



Permit Document Archive Retrieval Tool (pDART)



Development for Other Users

Sierra Army Depot

Requirement

Demonstrate compliance with the State of California hazardous waste regulations for the destruction of military munitions by:

- Open burning
- Open detonation
- Rocket motor burning
- Incineration

Development for Other Users

Sierra Army Depot

Solution

i-STEPS Emission/Risk/Hazard Module

- Allows planning and tracking of risk/hazard compliance
- Calculates risk/hazard levels at receptors for current meteorological conditions
- Stores resulting emissions in *i*-STEPS database

Future Development

Cross Media Electronic Reporting and Record-keeping Rule (**CROMERRR**)

Requirement

Provide an online electronic reporting system complying with the proposed CROMERRR to allow facilities to submit air emissions inventory data to regulatory agencies.

Future Development

What are the CROMERRR Requirements?

- Timeliness of Data Generation
- Copy of Record
- Integrity of the Electronic Document
- Submission Knowingly
- Validity of the Electronic Signature
- Binding the Signature to the Document
- Opportunity to Review
- Understanding the Act of Signing
- Electronic Signature Agreement

Future Development

CROMERRR

Solution

Five state partnership with MACTEC requesting a Network Challenge Grant from EPA

- Delaware
- South Carolina
- Arizona
- Indiana
- Kansas

Future Development

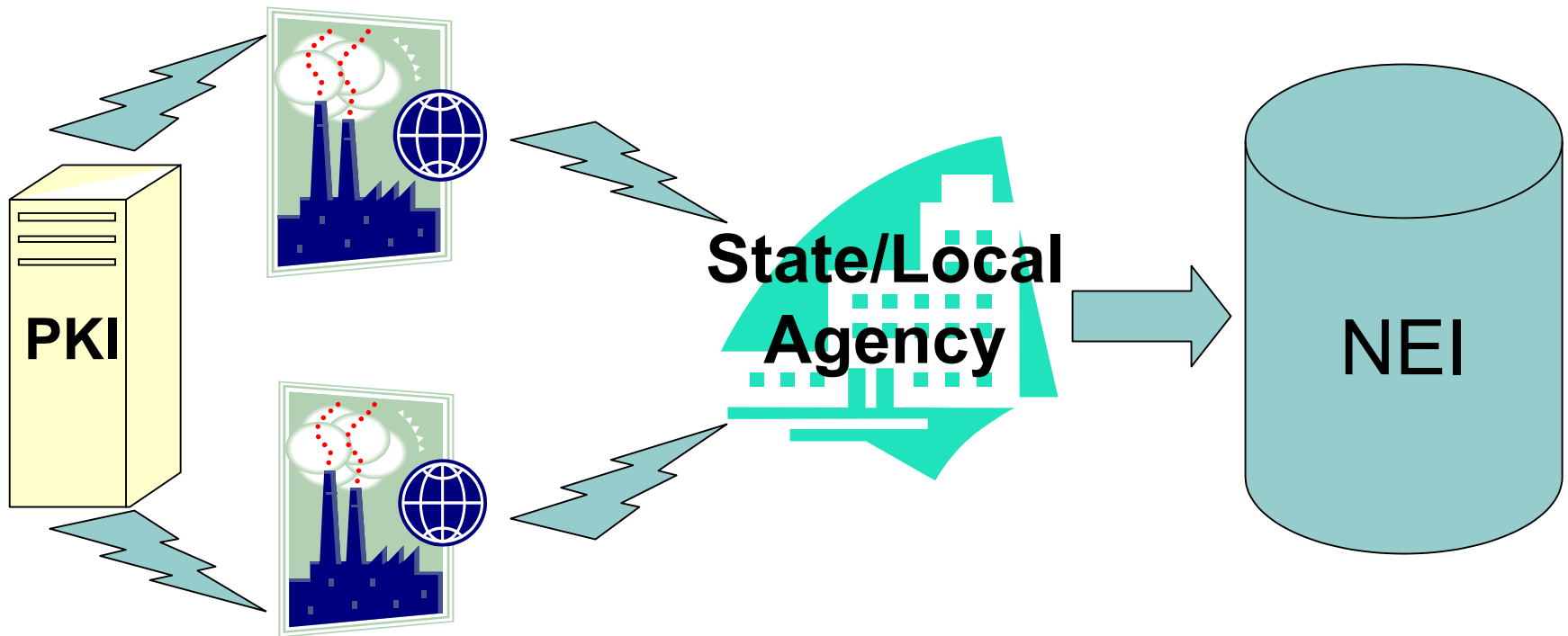
CROMERRR

Solution

- Development of a web enabled Satellite *i*-STEPS
- Generation of electronic documents from web forms
- Electronic signatures via authentication server and Public Key Infrastructure (PKI) operated by MACTEC
- Implement DART as the electronic document receiving system

Future Development

CROMERRR Compliant *i*-STEPS



CONCLUSION

- i-STEPS users and MACTEC together have:
 - Created network to collaborate and share ideas
 - Built efficient and user friendly system
 - Developed solutions for agencies to meet their needs
 - Developed solutions for facilities that have indirectly benefited agencies
 - Worked together to evolve *i*-STEPS to meet new requirements